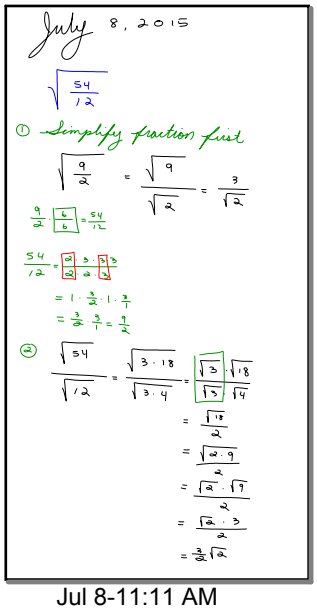
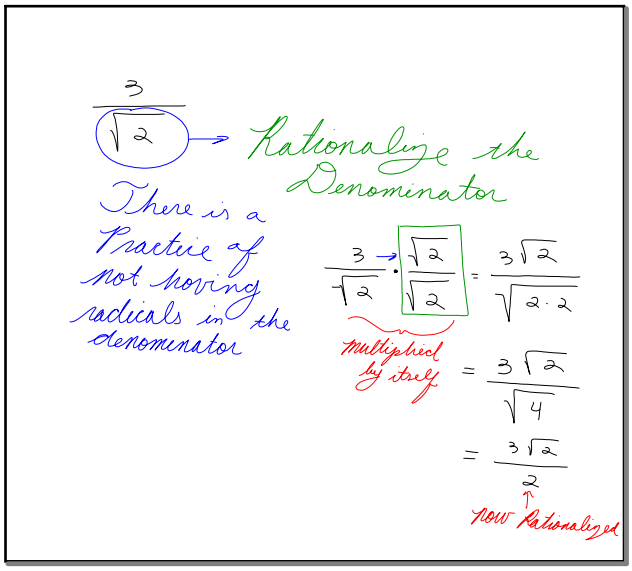


Jul 8-11:11 AM



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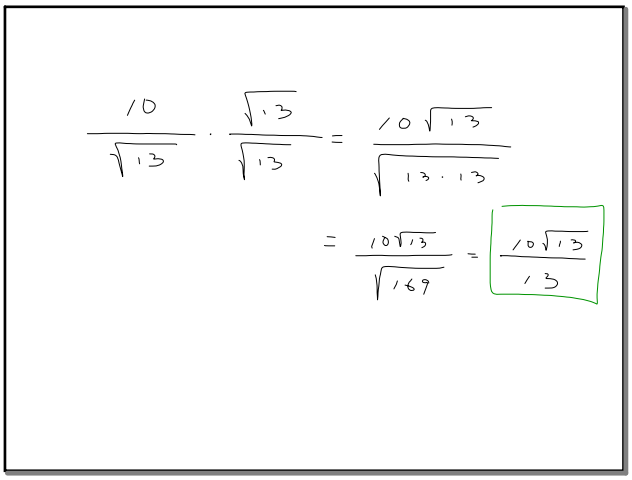

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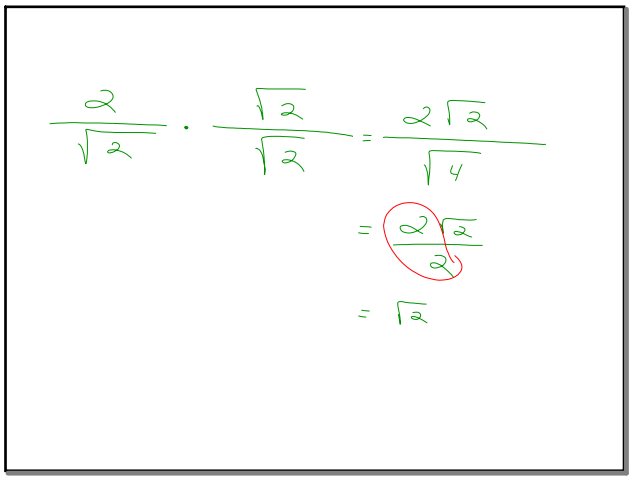
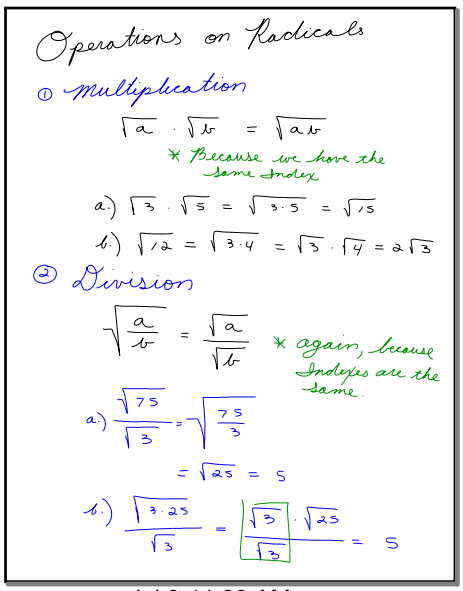
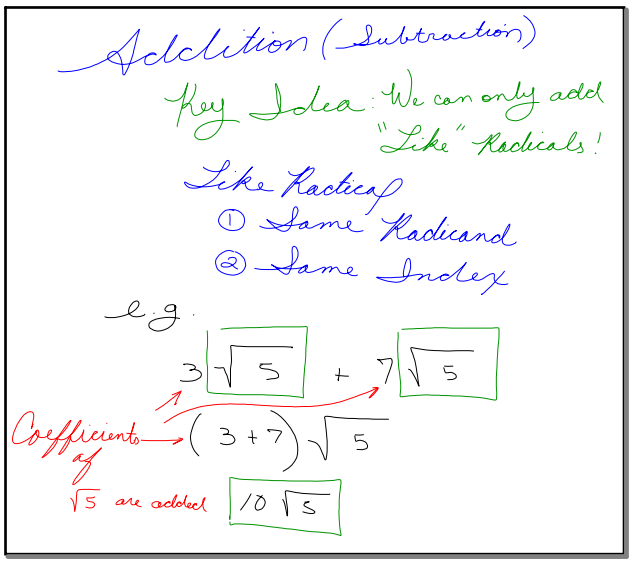


Jul 8-11:28 AM



Jul 8-11:30 AM



Jul 8-11:39 AM

$2\sqrt{11} - 15\sqrt{11}$

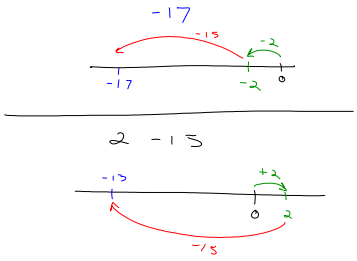
$(2 + (-15))\sqrt{11}$

$-13\sqrt{11}$

$-2\sqrt{11} \quad -15\sqrt{11}$

$(-2 + (-15))\sqrt{11}$

same "sign"



$2 - 15$

Jul 8-11:44 AM

$\sqrt{45} + \sqrt{12}$

* Radicands are not the same!

But Indexes are same.

$\sqrt{9 \cdot 5} + \sqrt{4 \cdot 3}$

$\sqrt{9} \cdot \sqrt{5} + \sqrt{4} \cdot \sqrt{3}$

$3\sqrt{5} + 2\sqrt{3}$

* Simplify, but not add!

Jul 8-11:50 AM

Properties of Algebra

$2 + 3 = 5$

$x + y = x + y$

Closure → i.e. is an operation closed or open?

Natural Numbers = $\{1, 2, 3, \ldots\}$

* Is addition closed?

$3 + 1 = 4$

Is this natural? Yes!

Rational Numbers

$\frac{1}{2} + \frac{1}{2} = \frac{1+1}{2} = \frac{2}{2} = 1$

addition open

natural

Jul 8-11:56 AM

Algebra's Power Tools

(See Handout)

• Commutative Prop of + & ×

$a + b = b + a$

• We can change the order, but get the same result.

$2 + 3 = 3 + 2$

$5 = 5$

$3 - 2 \neq 2 - 3$

$1 \neq -1$

Subtraction does not apply

* But

$3 + (-2) = (-2) + 3$

$1 = 1$

Jul 8-12:11 PM

• Associative Prop of + & ×

$a + (b + c) = (a + b) + c$

(b + c): associated; (a + b): associated

$2 + (3 + 4) = (2 + 3) + 4$

$2 + 7 = 5 + 4$

$9 = 9$

• Order stays the same, but association changes but the result is the same.

Jul 8-12:21 PM

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1, 3, 4, 6, 7, 11, 14, 17, 19, 22, 23, 24, 26, 29, 31, 32, 35, 38, 41, 51, 52, 59-68

Jul 8-12:26 PM